APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,991	02/25/2002	Jonathan J. Ho	X-967 US	7045

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EXAMINER
DO, THUAN V

ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	Applicant(s)
Office Action Summary	10/082,991	HO ET AL.
	Examiner	Art Unit
	Thuan Do	2825

-- The MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,5,6 and 9-11_ is/are rejected.

7)☒ Claim(s) _4,7 and 8_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _25 February 2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-11 are pending in this office action.

Claims

Claim 1, the term : "... a central portion...",

Claim 3, the term : "...a skeleton comprising data from the mask layer database not included in any of the at. least one database repeating elements...",

Claim 5, the term : "...a skeleton describing portions of the mask layer that are not repeating...",

Clarification or correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3,5,6,9 are rejected under 35 U.S.C. 102(b) as being unpatentable over Yamamoto et al., Pat. No. 5,879,844.

Regarding claim 1: Yamamoto teaches a method comprising:

forming an IC layer data file including data describing a repeating element (col. 7, lines 61-67 where the element of area is repeated) , data describing a skeleton into which copies of the repeating element are to be placed, and instructions as to where repeating elements are to be placed (col. 6, lines 23-29 where the element of contact holes is repeated and placed) ;

modifying the IC layer data file to compensate for diffraction due to proximity of adjacent lines in the layer (col. 3, lines 51-59 where the adjacent line segments are

considered) , thereby forming modified repeating elements, and modified data describing the skeleton (col. 31, lines 28-34) ;

generating a repeating element mask data file representing a central portion (col. 20, lines 52-59 where the optical elements are identical for central portion) of the modified repeating elements (col. 31, lines 28-34); and

generating a skeleton mask data file representing the modified data describing the skeleton and data on edge portions (col. 3, lines 51-59) of the modified repeating elements (col. 31, lines 28-34).

Regarding claims 2,9: These claims teach a method similar to claim 1 and rejected in the similar manner.

Regarding claim 3: Yamamoto teaches a method comprising:

generating a layout for the layer (col. 2, lines 34-41);

performing an optical proximity correction for the layer to produce a mask layer database (col. 3, lines 8-14);

identifying actual repeating elements in the layer (col. 7, lines 61-67 where the element of area is repeated);

dividing the layer (abstract for the division into an area of layer) to form database repeating elements by making dividing lines within the actual repeating elements to exclude edge portions of the actual repeating elements (col. 3, lines 51-59);

forming a mask layer database comprising: at least one database repeating element; a skeleton comprising data from the mask layer database not included in any of the at. least one database repeating elements (col. 7, lines 8-22 where the mask pattern is formed not included in the neighborhood boundaries) ; and

an instruction for inserting the at least one database repeating element into locations of the database repeating elements (col. 2, lines 19-31 by adding database of repeating mask pattern).

Regarding claim 5: Yamamoto teaches a mask layer database comprising:

a skeleton describing portions of the mask layer that are not repeating (col. 7, lines 8-22 where the mask pattern is formed not included in the neighborhood boundaries);

at least one database repeating element (col. 7, lines 61-67 where the element of area is repeated); and

an instruction giving locations at which the at least one database repeating element is to be placed (col. 6, lines 23-29 where the element of contact holes is repeated and placed).

Regarding claim 6: This claim teaches a database similar to claim 5 and rejected in the similar manner

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103 that form the basis for the rejections under this section made in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al., Pat. No. 5,879,844 in view of Tomita, Pub. No. 2002/0026260.

Regarding claim 10: Yamamoto teaches a method comprising:

at a design house, designing and laying out the IC device (col. 2, lines 34-51);

storing a layout of the IC device in electronic form (col. 2, lines 34-51);

at the foundry, generating a layout in electronic form that is optically corrected from the layout of the IC device (col. 3, lines 8-14);

at the design house, dividing the mask layout (abstract for the division) to identify a plurality of mask elements that are repeating and a skeleton of remaining elements, for the repeating mask elements creating a single database describing a repeating element and a set of instructions as to where to locate the repeating element (col. 6, lines 23-29 where the element of contact holes is repeated and placed);

at a mask house, forming a mask from the skeleton and the single database describing a repeating element located in repeating locations as specified by the set of instructions (col. 6, lines 23-29).

However, Yamamoto does not teach sending the layout of the IC device in electronic form to an IC foundry. Tomita teaches vendor network communication for database to match this feature in page 2, paragraph 0020.

It would have been obvious to one of ordinary skill in the integrated circuit design art at the time of the invention to have combined the teaching of Tomita into Yamamoto to sending the layout because such sending the layout to the vendor or an IC foundry would have provided a faster communication in the electronic file.

Regarding claim 11: This claim teaches a circuit similar to claim 10 and rejected in the similar manner.

Allowable Subject Matter

4.   Claims 4,7,8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reason for allowance is the prior art does not teach all limitations specified in dependent claim in corporate with each corresponding independent claims.
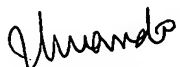
CONTACT INFORMATION

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan Do whose telephone number is 703-305-2362. The examiner can normally be reached on Monday-Friday 8:30-5:30 (except 2nd Fridays).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 703-308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0596.

Thuan Do
Patent examiner
6/14/03